CLAIMS

What is claimed is:

5   1. A method of look-up table in an imaging system, said method comprising:

receiving a digital signal having a high-bit portion and a low-bit portion;

subjecting said high-bit portion of said digital signal to a curve

10   table for look-up mapping to get a high-bit signal;

subjecting partial said high-bit portion to a slope table for getting a factor;

calculating said low-bit portion of said digital signal with said factor to get a low-bit signal; and

15   combining said high-bit signal with said low-bit signal to get an output signal.

2. The method according to claim 1, wherein said high-bit portion comprises a most significant bit of said digital signal.

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3. The method according to claim 1, wherein said low-bit portion comprises a least significant bit of said digital signal.

4. The method according to claim 1, wherein said step of

25   subjecting partial said high-bit portion comprises:

dividing a curve into a plurality of differential zones, said curve

related to a plurality of mapping values in said curve table;

generating a plurality of slope values according to said differential zones; and

storing said slope values into said slope table for mapping partial said high-bit portion.

5. The method according to claim 4, wherein said curve comprises a gamma curve for gamma correction of said imaging system.

6. The method according to claim 1, wherein said calculating step is to do multiplication with said factor and said low-bit portion.

7. Apparatus of mapping look-up table for reducing memory usage of an imaging system, said apparatus comprising:

high-bit mapping means response to a digital signal for receiving and mapping a high-bit portion of said digital signal to output a high-bit signal;

low-bit calculation means response to said digital signal for receiving and calculating a low-bit portion of said digital signal to output a low-bit signal; and

combination means for combining said high-bit signal with said low-bit signal to output an output signal for a controller.

8. The apparatus of claim 7, wherein said low-bit calculation means comprises:

zone-factor mapping means response to partial said high-bit

portion for mapping partial said high-bit portion with a slope table and outputting a factor; and

calculation means for doing multiplication of said factor and said low-bit portion.

9. The apparatus of claim 8, wherein said slope table comprises a plurality of slope values that are calculated by differentiating a gamma curve stored in said high-bit mapping means.

10. The apparatus of claim 9, wherein said gamma curve is divided into a plurality of differential zones for calculating said slope values.

11. The apparatus of claim 7, wherein said high-bit portion of said digital signal comprises a most significant bit of said digital signal.

12. The apparatus of claim 7, wherein said low-bit portion of said digital signal comprises a least significant bit of said digital signal.

13. The apparatus of claim 7, wherein said imaging system comprises a scanner.

14. A storage device used in an imaging system, said storage device responsible for mapping look-up table and enabling to execute following steps:

receiving a digital signal having a high-bit portion and a low-bit

portion;

subjecting said high-bit portion of said digital signal to a curve table for look-up mapping to output a high-bit signal;

subjecting partial said high-bit portion to a slope table for outputting a factor;

calculating said low-bit portion of said digital signal with said factor to output a low-bit signal; and

combining said high-bit signal with said low-bit signal to output an output signal.

15. The storage device according to claim 14, wherein said high-bit portion comprises a most significant bit of said digital signal.

16. The storage device according to claim 14, wherein said low-bit portion comprises a least significant bit of said digital signal.

17. The storage device according to claim 14, wherein said enabling to subject partial said high-bit portion comprises:

dividing a curve into a plurality of differential zones, said curve related to a plurality of mapping values in said curve table;

generating a plurality of slope values according to said differential zones; and

storing said slope values into said slope table for mapping partial said high-bit portion.

18. The storage device according to claim 17, wherein said curve

comprises a gamma curve for gamma correction of said imaging system.

19. The storage device according to claim 14, wherein said enabling to execute step of said calculating is to do multiplication with said factor and said low-bit portion.